

REMARKS

The present application was filed on October 10, 2003 with claims 1-35. Claims 9 and 23 have been previously canceled without prejudice, and claims 11-14 and 26-34 have been provisionally withdrawn. Claims 1-8, 10, 15-22, 24, 25, and 35 remain pending and claims 1, 15, 25 and 35 are the pending independent claims.

In the previous final Office Action, the Examiner rejected claims 1, 2, 7, 8, 10, 15, 16, 21, 22, 24, 25 and 35 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent App. Pub. No. 2003/0220925 (hereinafter “Lior”).

However, in the new non-final Office Action dated March 12, 2009, the Examiner appears to acknowledge deficiencies of Lior, presumably as pointed out by Applicants in their response dated February 17, 2009, by withdrawing the §102 rejection and introducing a new reference, namely, U.S. Patent No. 6,029,175 (hereinafter “Chow”) in combination with Lior.

Thus, the Examiner now rejects claims 1, 2, 7, 8, 10, 15, 16, 21, 22, 24, 25 and 35 under 35 U.S.C. § 103(a) as being unpatentable over Lior in view of Chow.

Further, the Examiner now rejects claims 5, 6, 19, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Lior and Chow in view of P. Brittenham, “An Overview of the Web Services Inspection Language” (hereinafter “Brittenham”).

Also, the Examiner now rejects claims 3, 4, 17, and 18 under 35 U.S.C. § 103(a) as being unpatentable over Lior and Chow in view of L. Lim et al., “Characterizing Web Document Change” (hereinafter “Lim”).

With regard to the new §103 rejection of claims 1, 2, 7, 8, 10, 15, 16, 21, 22, 24, 25, and 35 based on the combination of Lior and Chow, Applicants respectfully assert that neither Lior nor Chow, alone or in combination, teach or suggest all of the limitations of independent claims 1, 15, 25, and 35.

For instance, independent claim 1 recites: “[a] method of discovering services available in accordance with an information network, comprising the steps of: obtaining a request from a client to perform a search for one or more services; searching a chain of one or more service description documents, based on the client request, wherein the searching step further comprises automatically

determining one or more changed service description documents in the chain of one or more service description documents via automatic detection of changes in one or more attributes of the one or more changed service description documents, and automatically collecting at least a portion of the one or more changed service description documents, wherein the searching step is configurable to be performed in accordance with a user-specified level of granularity that defines a chain traversal depth to be used when searching the chain of one or more service description documents; and making a result of the search available to the client. Independent claims 15, 25 and 35 recite subject matter similar to claim 1.

It appears that the Examiner still contends that Lior discloses “searching a chain of one or more service description documents.” In their previous response, Applicants respectfully pointed out that Lior fails to disclose a chain of one or more service description documents, as claimed. Applicants submit that Lior refers to individual web services description language (WSDL) documents, which is not a chain of one or more service description documents. A chain of one or more service description documents is described in illustrative embodiments of the specification at, for example, FIG. 1 (“SERVICE DESCRIPTION DOCUMENT CHAIN”) and p. 9, ll. 22-26:

It is to be appreciated that a “service description document chain,” as illustratively referred to herein, pertains to WSIL [web service inspection language] documents that are hosted on the Web and linked together via a web link or uniform resource identifier (URI). Thus, these linked documents can be traversed and contents be retrieved by following the web links, which can be nested multi-level deep. (Underlining added for emphasis)

Applicants again note that Lior does not disclose a chain of one or more service description documents as recited in the claims and supported in the specification. Rather, Lior discloses individual WSDL documents which are not linked and are not traversed.

It follows that Lior fails to disclose searching a chain of one or more service description documents as recited in the claims. The Examiner continues to rely on Lior, p. 3, para. 39 and Lior, p. 4, para. 58 to reject searching a chain of one or more service description documents. Applicants submit that Lior simply discloses locating and obtaining a WSDL document from a specific address.

This technique does not disclose searching a chain of one or more service description documents. Applicants note that in one illustrative embodiment of the present invention, a chain of one or more service description documents is “traversed.” See Specification, p. 9, ll. 22-26. Locating a WSDL document using a specific address as disclosed by Lior does not teach traversing a chain of documents.

In addition to the above, Lior fails to disclose a user-specified level of granularity as recited in the claims and supported in the specification. Unlike the teachings of Lior, the specification discloses a configurable exploration mechanism in which the depth of web services inspection (WSIL) links to traverse is configurable. Specification, p. 12, ll. 7-11.

The Examiner continues to rely on Lior, p. 3, para. 49 and p. 4, para. 56 to reject the claim limitation that searching is configurable to be performed “at different levels of granularity.” Applicants again submit that the “tree structure” described at Lior, p. 3, para. 49 does not disclose the recited limitations. The tree structure of Lior is a tree used to locate various tags within one WSDL document. This does not teach or suggest a chain of one or more service description documents. Further, executing “a check on a specific file, or on all the files in a given location, or all locations” as disclosed at Lior, p. 4, para. 56, does not disclose searching that is configurable to be performed in accordance with a user-specified level of granularity as recited in the claims. Applicants submit that the recited level of granularity is related to traversing a chain of one or more service description documents, not simply checking on a file at a specified location. Lior’s technique of executing a check on a specific file or files in a given location or locations does not teach or suggest searching in accordance with a user-specified level of granularity.

Applicants reiterate that Lior discloses techniques related to an individual WSDL document, not a chain of one or more service description documents. It follows that Lior also fails to teach or suggest that the searching step further comprises automatically determining one or more changed service description documents in the chain of one or more service description documents via automatic detection of changes in one or more attributes of the one or more changed service description documents, and automatically collecting at least a portion of the one or more changed service description documents as recited in the independent claims.

The Office Action appears contradictory in that, although the Examiner seems to argue in paragraph 6 that Lior discloses "searching a chain of one or more service description documents . . . at different levels of granularity," paragraph 7 of the Office Action seems to acknowledge that Lior does not perform all of the above-mentioned steps, and thus introduces Chow in combination.

However, Chow clearly fails to remedy the deficiencies of Lior. In fact, Chow has nothing to do with WSDL documents, WSIL documents, or anything of the like. Chow is directed to a completely different problem, as explained at column 3, lines 48-56: "there is a problem of updating a client such as a browser when a page is changed, because all HTTPD servers are stateless and connectionless, so it is impossible for servers to maintain clients' states with the standard server software design and implementation." The solution to this problem is explained at columns 5 and 6 of Chow:

The Revision Manager accepts a user input indicating that the user has some interest in monitoring a particular document. We refer to this input as a specification of an "object of interest" and to the user making the specification as "the interested party." In one specific embodiment, the specification of an object of interest consists of two components: (1) the unmodified URL for the object and (2) a check box flag that is toggled on by the user. In addition, in this specific embodiment, the interested party specifies a maximum frequency for receiving notification updates, which the Revision Manager uses to assure update notifications do not occur too often. The Revision Manager also keeps a list of parties interested in particular updates as well as information required to notify each of them appropriately when an update notification is due. In this specific embodiment, the interested party supplies a port number so that update notifications can be conveyed to each through a separate browser window that is opened and displayed automatically for the user. This specific embodiment of the Revision Manager therefore provides: (1) caching of objects of interest to support ready access in case of subsequent repeated requests; (2) translation of resource locators embedded in retrieved resources from their original values to enable subsequent accesses to be directed to the Revision Manager; (3) interception by the Resource Manager of modified resource requests; (4) determination of the best source for supplying the requested resource; and (5) redirection of the request to the best supplier of the requested resource, if a resource of sufficient quality is not already present in the cache; (6) spontaneous updating of the cache when objects of interest have changed; and (7) notification of interested parties when objects of interest have changed.

In a specific embodiment, the Revision Manager receives a URL for a document sent by an off-the-shelf World-Wide Web HTTP browser which has a common gateway interface (CGI) built in, retrieves the document and, if the user specifies an interest in being

alerted on updates to the document, caches the document, and subsequently spontaneously monitors the server to notice if the document has been modified. In the preferred embodiment, moreover, the monitoring is performed by periodically querying the document's server to determine if the document has changed since it was last retrieved. When the document is determined to have been modified, the Revision Manager saves the updated document to its cache and then informs each interested party's registered browser, through a CCI channel, to issue a GET command to the Revision Manager. In this way, the browser of the interested party accesses the modified document from the Revision Manager's cached file and updates its view to correspond with the most recently accessed updated object.

In a specific embodiment, the method employed for intercepting a URL includes: (1) use of forms to accept a URL from a user through an HTTP browser, and (2) delivery of the requested document with translated hyperlinks, each of which has the Revision Manager's address as the prefix. This translation of hyperlinks means that when the user next selects a resource for access by activating the hyperlink, the user's request is first directed to the Revision Manager, regardless of the resource's actual location on the network. The delivered document also has a short form attached. This form allows a user to register interest in the currently viewed document and to specify the shortest interval in seconds desired by the user between successive update notifications on the same document. In this specific embodiment, there are two ways to cancel a registration: one is through the short form provided on the returned document, and the other is when the user terminates the browser. Other policies and mechanisms could also be easily supported. In this specific embodiment, other hyperlinks that refer to non-textual multimedia objects are not translated, but are retained intact along with the document's cache file. When the query as to whether a file has been modified is made by the Revision Manager, these multimedia URLs are also queried. Hence, although documents are not modified to cause browsers to access multimedia objects from the Revision Manager, any change made to the document, including its multimedia links, will trigger the browser to retrieve and update the display of the document. Deeper levels of change monitoring can also be adopted as a matter of policy, such as checking whether any of the objects referred to by URLs within a document have changed. This kind of monitoring of changes can be carried to multiple levels by a recursive application through linked documents of the change detection mechanism applied at the top level defined by a single document with its embedded hyperlinks.

Thus, the Revision Manager provides means for users to inform it of which documents are worthy of monitoring and techniques for alerting users when documents of interest have been updated. The Revision Manager serves as an intermediary between standard HTTP browsers and HTTP servers thereby obviating the need for significant new or different infrastructure. The Revision Manager, further, collects at a site convenient to a group of users a single cache of the most recent versions of documents so that all members

of the group can have quick and inexpensive access, while the group as a whole can significantly reduce communication costs. Unlike other HTTP servers, the Revision Manager can spontaneously update its cache to keep its information current. Lastly, the Revision Manager can be configured to provide a user a comprehensive view of documents of interest that have changed since the last time the user looked.

The Office Action contends that the above method discloses “searching a chain of one or more service description documents . . . in accordance with a user-specified level of granularity that defines a chain traversal depth to be used when searching the chain of one or more service description documents.”

First of all, Chow has nothing to do with service description documents. Chow deals with standard web pages such as a stock price web page. Secondly, there is no disclosure of a user being able to specify how deep any chain traversal will be. The only mention of a depth in Chow is when it mentions “[d]eeper levels of change monitoring can also be adopted as a matter of policy, such as checking whether any of the objects referred to by URLs within a document have changed.” This is clearly not what is claimed. The change monitoring appears to be an automatic preset policy, and not anything that a user can specify.

Furthermore, with regard to the Examiner’s § 103 rejection based on Lior and Chow, Applicants note that an analysis supporting a rejection under 35 U.S.C. § 103 should be explicit and should not be based on mere conclusory statements. See KSR v. Teleflex, 127 S.Ct. 1727, 1741, 82 U.S.P.Q.2d 1385, 1396 (U.S., April 30, 2007), quoting In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”).

While paragraph 9 of the Office Action attempts to rationalize the combination of Lior and Chow, the rationale fails to explain why one skilled in the art of WSDL documents (such as one who might be reviewing the WSDL process of Lior) would look to a process for updating a client such as a browser when a web page (such as a stock price web page) is changed, as disclosed in Chow.

For at least these reasons, Applicants respectfully submit that the combination of Lior and Chow fails to anticipate independent claims 1, 15, 25, and 35. It follows that Lior and Chow fail to render obvious dependent claims 2, 7, 8, 10, 16, 21, 22, and 24 due to their respective dependencies from independent claims 1 and 15.

With regard to the rejection of claims 5, 6, 19, and 20 under 35 U.S.C. §103(a) as being unpatentable over Lior and Chow in view of Brittenham, Applicants initially assert that Brittenham fails to remedy the deficiencies of Lior and Chow as described above. Furthermore, Brittenham discloses an overview of the Web Services Inspection Language, a service discovery mechanism that addresses a different subset of requirements using a distributed usage model. Brittenham's discussion of Web Services Inspection Language does not teach or suggest aggregating a plurality of result sets obtained during the searching step into an aggregated result, and then making the aggregated result available to the client as recited in claims 5 and 19. Nor does Brittenham's disclosure teach or suggest that the plurality of result sets comprise services obtained during the searching step as recited in claims 6 and 20.

Applicants further assert that the Examiner has failed to present a proper case of obviousness. In presenting his case for obviousness, the Examiner makes the following statements at p. 5, paragraph 15, and p. 6, paragraph 16, of the Office Action:

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to improve conventional Web services technologies to address the needs of distributed systems by using WS-Inspection document as described by Brittenham with the web monitoring described by Lior and Chow to detect changes.

Applicants respectfully submit that this is a conclusory statement of the sort rejected by both the Federal Circuit and the U.S. Supreme Court. See KSR v. Teleflex, 127 S.Ct. 1727, 1741, 82 U.S.P.Q.2d 1385, 1396 (U.S., April 30, 2007), quoting In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006). There has been no showing in the present § 103 rejection of objective evidence of record that one of ordinary skill in the art would combine Lior, Chow, and Brittenham to produce the recited limitations. Lior discloses techniques related specifically to a WSDL document. Chow discloses

web page update techniques. Brittenham discloses a general overview of Web Services Inspection Language. A person of ordinary skill in the art would not combine Lior, Chow, and Brittenham to produce the recited limitations because there is no clear connection between the three disclosures. Further, simply applying Web Services Inspection Language to Lior and Chow would not automatically result in the recited limitations.

For at least these reasons, withdrawal of the §103 rejection of claims 5, 6, 19, and 20 is respectfully requested.

With regard to the rejection of claims 3, 4, 17, and 18 under 35 U.S.C. §103(a) as being unpatentable over Lior and Chow in view of Lim, Applicants assert that the recited claims are patentable at least by virtue of their dependency from independent claims 1 and 15. Further, Lim discloses a study on how web documents change, but fails to remedy the deficiencies described above with regard to the independent claims.

Applicants further assert that the Examiner has failed to present a proper case of obviousness. In presenting his case for obviousness, the Examiner makes the following statements at p. 6, paragraph 18, and p. 6, paragraph 19, of the Office Action:

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to improve conventional Web services technologies to address the needs of distributed systems by using WS-Inspection document as described by Lim with the web monitoring described by Lior and Chow detect changes.

Applicants respectfully submit that this is a conclusory statement of the sort rejected by both the Federal Circuit and the U.S. Supreme Court. See KSR v. Teleflex, 127 S.Ct. 1727, 1741, 82 U.S.P.Q.2d 1385, 1396 (U.S., April 30, 2007), quoting In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006). There has been no showing in the present §103 rejection of objective evidence of record that one of ordinary skill in the art would combine Lior, Chow, and Lim to produce the recited limitations. Applicants further assert that the Examiner's argument of obviousness is the same argument proposed for the combination of Lior, Chow, and Brittenham. Applicants note that the cited portion of Lim, p. 141, sec. 6, does not appear to disclose WS-Inspection documents.

Therefore, the Examiner's argument is invalid and Applicants believe that the Examiner has failed to present an argument that a person of ordinary skill in the art would combine Lior, Chow, and Lim to produce the recited limitations.

For at least these reasons, withdrawal of the §103 rejection of claims 3, 4, 17 and 18 is respectfully requested.

In view of the above, Applicants believe that claims 1-8, 10, 15-22, 24, 25, and 35 are in condition for allowance and respectfully request withdrawal of the various §103 rejections.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "William E. Lewis", written in a cursive style.

William E. Lewis
Attorney for Applicant(s)
Reg. No. 39,274
Ryan, Mason & Lewis, LLP
90 Forest Avenue
Locust Valley, NY 11560
(516) 759-2946

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